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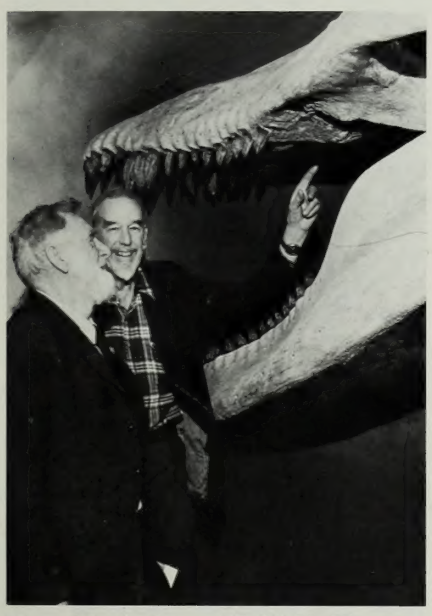
MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

Reunited at the MCZ after 57 years

More than half a century ago, Harvard zoologist William E. Schevill excavated a skeleton of *Kronosaurus queenslandicus* that had been discovered by R. W. H. Thomas on his ranch in Queensland, Australia. The discovery of the 42-foot-long and 120-million-year-old fossil fascinated the world.



Three friends (l. to r.) R.W.H. Thomas, William Schevill, and Kronosaurus queenslandicus.

With Thomas' permission, blocks of stone containing the giant fossil, each weighing about six tons, were dug and blasted out, hauled to the coast, and shipped to the MCZ. Here the creature was reassembled and is still the world's only mounted specimen of Kronosaurus on display.

Last December, Thomas was inspired by a television program of the Mt. Isa Museum to see again the fossil discovered so many years ago on his land. According to his wife, Thomas, who is now 93, declared, "I want to see my animal."

On January 11 the retired cattle rancher, with his wife and grandson, made a special trip to the MCZ, their first visit to the United States. Not only was Thomas reunited with his animal, but also with Schevill, whom he had presumed killed in World War II. Shevill had also imagined his friend Thomas long since dead and certainly never expected to meet him again in front of their very old mutual acquaintance, *Kronosaurus queenslandicus*.

New Zealand Preview

by Gabrielle Whitehouse

New Zealand, comprising the North Island, the South Island, and a few smaller islands, has a land mass approximately twice the size of New England and a population of under three million. Separated from the continent of Gondwanaland before mammals evolved, it has no native mammals except two species of bats. It also has no snakes but it

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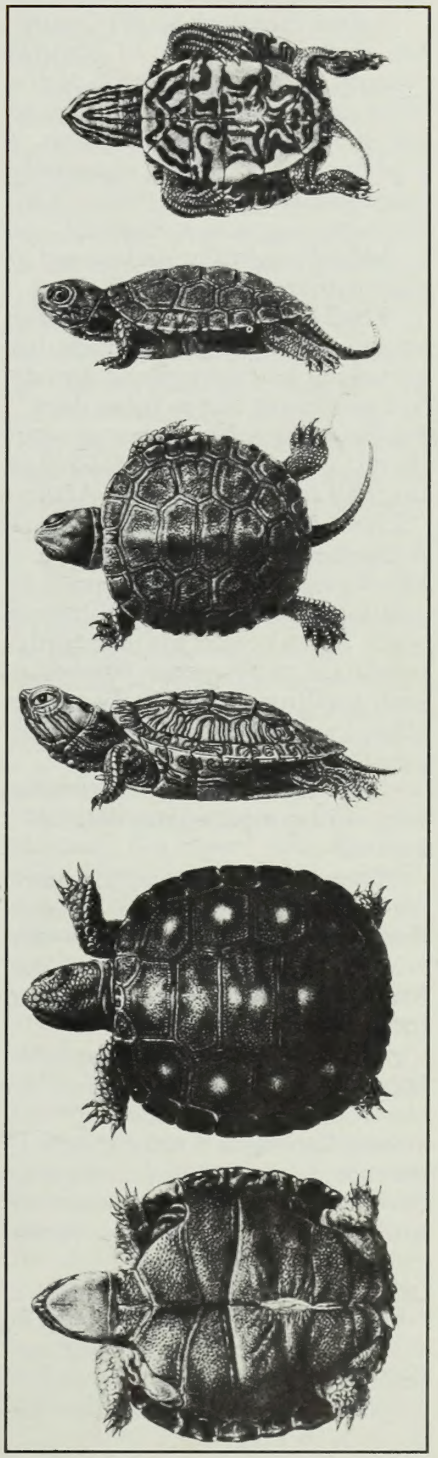
Where did turtles come from?

For story, see page 6

Right, turtles studied by Louis Agassiz from *Contributions to the Natural History of the United States of America*, Louis Agassiz. Volume 2; 1857.



Patterns of a Life in Science: A. W. Crompton

by Hilary Hopkins

This is a story about an important discovery. It was found that an early ability to read and write with ease is not necessarily related to being curious, intelligent, and productive. The story should be instructive to those few teachers, parents, and children who still have not made this discovery.

I called Professor A. W. Crompton, Fisher Professor of Natural History and past Director of the Museum of Comparative Zoology, to ask if I might interview him. I explained that I was especially interested in his early years. "Oh, my schooling was a disaster!" he exclaimed cheerfully, and agreed to meet with me.

"I had a disastrous school career because of dyslexia, which made that part of my life pretty grim—nobody had ever heard of it in those days," Professor Crompton said as we sat in his office a few days later, talking of his childhood in South Africa. "School was just a nightmare. I remember writing an essay for a physics master, and I succeeded in spelling 'aluminum' four different ways. I was beaten for insubordination. Of course, when I looked at each spelling, they all looked the same. I was never considered a star pupil," he added drily.

"Did you have any teachers that were at all sympathetic or helpful?" I asked.

"There were one or two who gave me hope that things were OK out there, that I wasn't an idiot—but sympathy was certainly lacking. But I survived it well, though I never thought school was much fun."

As we spoke further of his childhood, it turned out that the fun lay elsewhere, in the outdoors. "All around Capetown you have incredible mountains that come all the way down to the sea, and there were no roads in these mountains. When I was 11 or 12, a small group of my friends and I would just take off into these mountains—our parents would deposit us and we would just walk off, and come back in a week or two. We would catch fish and live off the fish, and live out there, like a bunch of abandoned kids, and have a wonderful time. I suppose there were inherent dangers—the only really dangerous animals were baboons, and we did have mishaps, but we seemed to survive them. Those are the fondest memories I have."

Other special outdoor memories include a wonderful Huck Finn interlude: "When I was in the first grade, my school was about four or five miles from home, and I had to walk there. I became a sort of truant. I'd go along, and I would play with animals, and I would swim in the rivers, and I'd get to school late—it was just a marvelous life. The teachers eventually found me out, why I was coming late."

The young Crompton, who was so at home and confident in the outdoors, yet who had such difficulty in the world of formal schooling, planned to become a vet. Almost overnight, as he describes it, the great discovery was made.

"All of a sudden, after these years of non-productive schooling, I got into science classes at the university and found out what sort of science there was. God! Where has this been all this time! Whether it was in the physics lab, or the histology lab, all of a sudden what I'd never really thought was within the realm of possibility for me was sitting there and was really quite easy to approach. It was an absolute revelation to me that I could do all this sort of stuff—I'd been the dunce, and now I was at the top, and it was a very exciting time in my life, that first year, and from then on things went well for me."

It turns out this is something of an understatement. Things went exceedingly well, as Crompton completed not one but two Ph.D.'s before turning 26, and was appointed Director of the South African Museum at the age of 28, the youngest director in the one hundred fifty year history of that institution.

The career in science began with embryology, with a professor named deVilliers who introduced Crompton to the evolution of form. "I'd done this work on the development of penguin skulls, and I thought if I was going to do anything with this understanding of embryological development, it'd be nice to know something about historical development of animals. So I went into the Ph.D., on South African fossils, with a famous paleontologist at Cambridge, by the name of Rex Parrington. That sparked my interest in the possibilities of the Red Beds, these massive deposits that lie in the central part of South Africa. I spent a good fifteen years working these beds, and we discovered the first mammals, we discovered the earliest dinosaurs, and it was great fun."

I asked Professor Crompton to tell a story about finding a new fossil.

"Well, basically what you do when you go out to find fossils is you go on your two feet and you start walking. We did once find a dinosaur that we were very excited about, because it had never been seen before. When we got to the lab and started working on it, lo and behold, what we were really looking for was inside it, or in close association with it, and that was one of the earliest mammals."

"The other very early mammal I

Hilary Hopkins, a Friend of the MCZ since 1981, is a science enthusiast and educational consultant specializing in gifted children. This article is the sixth of a series she has prepared for the MCZ Newsletter.

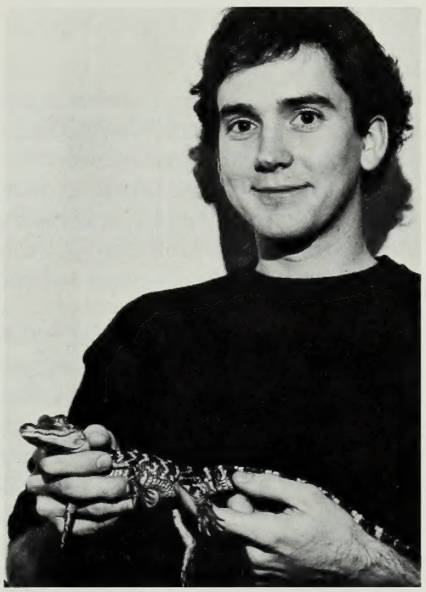
Davis Prizewinner Stephen Gatesy:
Tracing evolution through locomotion

Do birds and crocodiles walk in ways similar to their extinct ancestors the dinosaurs, thus providing science with clues about the evolution of locomotion in this group?

That is a question fifth-year graduate student Stephen Gatesy has been investigating for some time. A recent paper on one aspect of this research won Gatesy the D. Dwight Davis Prize for best student paper in the Division of Vertebrate Morphology of the American Society of Zoologists. Given only by unanimous decision, this distinguished award honors "significant conceptual, observational and experimental contributions to the field of vertebrate morphology."

The paper Gatesy submitted, "Neuromuscular evolution: activity patterns, morphology and homology," constitutes only part of his overall thesis research. The goals of this broader-based research include a reconstruction of the evolving archosaur (birds and crocodiles) locomotor system from a phylogenetic perspective. He plans to make this projected reconstruction based not just on fossil remains, but on an examination of how the muscular-skeletal system functions in living archosaurs.

As he notes in his thesis abstract, "Although the changes in the skeletal system during archosaur evolution are fairly well documented, an appreciation of the functional consequences of these modifications requires an understanding of the structure-function relationship in living forms." In other words, how do the bones and muscles of animals interact during movement?



Stephen Gatesy with one of the alligators he walks on a treadmill for his research on locomotion.

The phrase "structure-function relationship" is key to Gatesy's approach. As he also points out in his thesis abstract, while the bone, muscle, and ligament structure of living archosaurs are relatively well known, "the functional mechanics of the hindlimb complex during locomotion remains highly conjectural. This is due to a paucity of basic knowledge of limb movements and muscle activity during walking and running . . ."

To investigate how the muscles of the hindlimb complex works in archosaurs, Gatesy has been walking alligators and guinea fowl on a treadmill and measuring their movements with cineradiography (x-ray movies) and electromyography (EMG). EMG monitors the electrical pulses of active muscles. And, by measuring the pulses generated by specific muscles during specific activities—walking, running, standing, etc.—Gatesy is able to get a much clearer picture of the functional mechanics of locomotion in these species.

In his study of evolution, Gatesy's own interests and plans have evolved. He began with an interest in bones, as he says, which led to muscles, which led to nerves. As a result, he plans to pursue neurobiology when he finishes his thesis.

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didn't find at all. It was found by an assistant of mine, who came and said, 'I've found a mammal; it's in the rocks up there.' And I said, 'Don't be silly,' and we all laughed and said, 'You haven't found one,' and wouldn't go and look at it at all. But eventually she persuaded us to go and look, and there it was."

"How would you describe your work style?" I asked.

"I suppose I haven't followed a regular course; it tends to be a kind of jumping around. I find it difficult to say, 'This is what I'm going to do,' and then stay with that particular thing exclusively. I find out what I want to find out, and then move on to something else. Consequently I have ended up with a mass of unpublished data."

"I went from embryology to playing around with fossils, and then I went on to ask: 'We have all these fossils, how do they work?' So I then embarked on a series of experimental programs to explore the functioning of the systems of living animals and looking at their development. For instance, if you look at an evolving jaw, you can ask, how is the jaw changing, and can you get any kind of handle on why it's changing, and how did it function previously? And we designed a series of experiments on living animals to try and test that."

As we came to the end of the interview I asked Professor Crompton one of my favorite questions. "If you were not able to do science, by some horrible circumstance, what other work would you choose?"

"Oh! I don't know . . . shoot myself I suppose! I might farm. My father had a fruit farm after he retired, when I was in university, and I was in charge of the packing shed for the fruit packing during the summer, and I have some feeling for farming. But I can't ever conceive that I would retire, not do science. The thought that one would actually go and sit and play golf somewhere—totally incomprehensible to me!"

"I'm afraid mine is not a very encouraging story about how scientists are born! I wasn't a gifted child," he laughed as I turned off the tape recorder.

As a teacher of gifted children, I disagree, I thought to myself. Indeed, quite the contrary. It all depends upon what arena you give the child to perform in. Did those teachers ever see the young boy so at home in his knowledge of the mountains? Did they ever ask whether the poor reader was a good thinker? Teachers! Are you listening?

Photo by George G. Whitehouse

Australian gannets nest at Cape Kidnappers, Hawke Bay, North Island.

New Zealand Preview

Continued from page 1

does have several endemic bird species, lush rain forests with vine-laden native trees, many waterfalls, and dramatic snow-covered mountains.

From Cape Reinga in the far north to Stewart Island, south of the South Island, George Whitehouse and I explored New Zealand in February with Friends of the MCZ travelers in mind. While it is difficult not to include everything we saw, we think we have come up with an ideal three-week itinerary for next February. The trip combines spectacular scenery, visits to gannet and royal albatross nesting colonies, glow-worm caves, glaciers, the two sounds (Milford and Doubtful) and the four-day Hollyford Track. There will be opportunities for fishing enthusiasts to try their skill on trout and salmon and for plant fanciers to become acquainted with the incredibly rich flora. Mark Skinner, a veteran MCZ trip leader whose knowledge encompasses birds, plants, and fishing, will join me in leading our February 1990 expedition.

Highlights of our exploratory tour include "Blackwater Rafting" in a glow-worm cave in Waitomo, staying with a farm family in Cambridge on the North Island's rich Waikato Plain, landing on Franz Josef glacier in a helicopter and walking around among the ice crevasses, and hiking along the pristine Hollyford River in the South Island's spectacular Fiordland National Park.

"Blackwater rafting" is one of New Zealand's hottest new adventure activities and should really be called "tubing" since participants use an inner tube to float on the river both inside and outside the cave. We wore wetsuits, brightly-colored leggings so our guides wouldn't lose us in the cave, hard-hats, and miners' lights for this descent into the dark unknown. Our group of twelve led by two guides hiked for about a mile in the hot sun (in our bizarre regalia we looked like something out of a Monty Python film) to the mouth of the cave where we were prepared for what lay ahead. "Watch out for the eels" was our guide's first warning. To help us become comfortable when meeting these cave-dwellers, a container of "eels" was passed around which one squeamish young woman finally got the courage to open. They turned out to be chocolate-covered marshmallow fish. "Watch out for loose rocks, slippery surfaces, keep your hands close to your sides since the tunnels are narrow," we were advised.

And then it was time to enter the cave. At first the water was around our ankles but soon it was up to our thighs. We negotiated a waterfall with aplomb after an earlier practice jump into a stream, and were soon floating along on our innertubes, our headlights turned off, mesmerized by the green glow emanating from the star-like constellations of glow worms above us on the cave roof. All too soon we saw the faint light of the outside world and were back in the sunshine, floating along and feeling thoroughly elated with the whole experience.

We met with Martha Ash, the education director at the Waitomo Cave Museum, who takes those participants who do not wish to opt for blackwater rafting on a nature walk. All MCZ travelers will have two chances to explore glow-worm caves by boat, and will also see them on a night walk during the Hollyford Track.

The New Zealand "tracks" ("hikes" to us) are legendary. For many, hiking the Milford Track is a lifetime ambition. We chose the somewhat less rigorous and much more varied Hollyford Track because we thought that every MCZ traveler to New Zealand should have the experience of spending four days completely in the wilderness and the physical demands of the Hollyford are within reach of our typical MCZ Friends travelers. The walks along easy trails lined with many species of New Zealand's native trees, and accompanied by the songs of bellbirds and tuis, were invigorating, the jet-boat rides had just enough white water challenge to make them exhilarating. Our meals were plentiful and wholesome, and our nights at the track huts were comfortable. We saw a colony of Southern sea lions on the boulder-strewn beach, and a Fiordland crested penguin negotiating the boulders. Members of our party caught trout and salmon in the clear Hollyford River. We emerged reluctantly from our sojourn in the wilderness determined to return.

Milford Sound flows into the Tasman Sea on the west coast of the South Island.

Photo by Gabrielle Whitehouse

Travel Program

So far 1989 has been an outstanding travel year for the Friends. The two **Tanzania** camping safaris, and our land and cruise program to explore the treasures of western **South America** have been enthusiastically reviewed. Remaining 1989 trips include the sold-out **Beyond the North Cape** cruise (Edinburgh to Spitsbergen)—an additional MCZ group will be on the return trip—aboard the *Polaris,* two safaris to **Botswana** and **Zimbabwe,** and the **Foothills of the Himalayas,** another sell-out.

Plans for 1990 include:

January 12–24: **Ecuador and the Galapagos Islands** with optional 6-day extension to Peru. A comprehensive cruise of these islands which formed the basis for Darwin's thoughts on evolution. Aboard the new *Isabella II.* Led by Steven Austad.

January 13–26: **Antarctica:** Another opportunity to explore the frozen south, with its magnificent ice-bound vistas, again at the height of the penguin nesting season. Led by Randy and Molly Olson aboard the *Illiria.*

January 6–22: **Tanzania Tenting Safaris:** Two classic tenting safaris including visits to Lake Manyara, Serengeti National Park, Olduvai Gorge and Ngorongoro Crater. Led by Ken Dial (January) and Farish Jenkins (February).

February 11–March 4: **New Zealand:** North and South Islands including visits to glowworm caves, gannet and royal albatross nesting colonies, Franz Joseph Glacier, Milford and Doubtful Sounds, and the Hollyford Track with jet-boating and scenic flights. Led by Mark Skinner and Gabrielle Whitehouse.

February 17–March 3: **Costa Rica's National Parks:** a repeat of this year's excellent itinerary to some of the outstanding natural areas including Manuel Antonio National Park, Santa Rosa, and Monteverde Cloud Forest. Led by Charles Vogt.

April 11–26: **Unspoiled French Polynesia: A Cruise to the Marquesas.** Leaving from Tahiti aboard the *World Discoverer,* we will visit the islands made famous by Gauguin and Melville and considered by many to be the most physically beautiful islands in the world. On this second MCZ voyage to Polynesia, we will once again combine marine studies, birding, cultural exploration, and literature. Jointly sponsored with Harvard Alumni Association. Led by Prudence Steiner and Robert Woollacott.

June 3–June 20: **Secret Islands East of Bali.** A choice selection of some of the least visited of Indonesia's over 13,000 islands. We will give our attention to the magnificent birds, fishes, and other marine life; unusual terrestrial life including spiny anteaters and the Komodo dragon; and the rich cultural heritage of the islanders who will welcome us at markets, feasts and concerts by *gamelan* orchestras. Jointly sponsored with California Academy of Sciences. Led by Stephen Jay Gould.

July 16–August 1:
August 20–September 5: **Kenya Camping Safaris:** Two opportunities to visit Kenya's premier national parks. Exclusive private camps in Amboselli, Samburu, and Masai Mara and visits to Aberdare Country Club, the Ark, and Lake Naivasha. Led by Cristian Samper (July) and Steven Austad (August).

July 27–August 9: **In the Wake of Viking Exploration.** On this voyage we will examine the historic stage set by the vikings, meet their descendents, and marvel at the natural beauty and diverse wildlife of coastal Norway, the Shetlands, Faeroes, Westmann Islands and Iceland. Aboard the *Polaris.* Led by Karel F. Liem.

October 12–30: **Natural Wonders of Brazil and Argentina.** A repeat of our highly successful 1988 trip to Rio, Iguassu Falls, Buenos Aires, Tierra del Fuego, Perito Moreno Glacier, and Peninsula Valdez in Patagonia. Jointly sponsored with Long Term Research Institute. Led by Roger Payne, Michael Ellis, and Alfred Alcorn.

Upcoming Events at the MCZ

May 2 **Feed the Birds:** An exhibition of bird feeders, the animals they attract, and their potential effect on local bird populations. Members' Preview: 5:30-7:00 p.m. in the MCZ. The exhibition continues through the summer.

May 4 **The Desert, The Delta, and The Falls:** Everything you ever wanted to know about our Botswana and Zimbabwe safaris. A slide presentation by Babette Alfieri of Abercrombie & Kent. 5:30 p.m. in the MCZ.

May 17 **An Evening with Peter Jones:** One of the world's leading experts on stone tools and a former colleague of Mary Leakey. Jones has excavated hominid and mammalian remains throughout Africa. He is currently studying the Hadza and Wanderobo hunter-gatherer tribes of Tanzania. 5:30 p.m. in the Geological Lecture Hall, 24 Oxford St. Admission: $3.00 for general public, $2.00 for Friends, students and seniors.

September 12 **Images from Nature:** Brazil and Argentina photographs by Dr. Sean Palfry. Members' Preview: 5:30-7:00 p.m. in the MCZ.

September 24 **Open House at the Concord Field Station:** Come spend Sunday afternoon with the animals and explore behind-the-scenes at the Concord Field Station in Bedford. Members only. Fee: $10.00 individual, $25.00 family. 2:30-5:00 p.m.

October 10 **Around the World Again in 80 Minutes:** A whirlwind preview of the 1990 MCZ Natural History Travel Program. Pick up your passport to adventure and tour around the world in our museum exhibits. Get your passport stamped at booths representing each destination where you can meet trip leaders, sample regional fare, and see some of the animals you will encounter on your journey. 5:30-6:50 p.m. in the MCZ.

Where did turtles come from?

Why and how have turtles developed a body plan unique unto themselves and vastly different from any other vertebrate? That's the puzzle Ann C. Burke has been patiently investigating in her dissertation research. Burke, a graduate student in herpetology under Professor Pere Alberch, became interested in this important and heretofore unaddressed question while working in the fossil reptile department of the American Museum of Natural History in New York. Here her curiosity was piqued about the neglected enigma of the inimitable chelonian (turtle) "bauplan".

"The 19th century German term 'bauplan'," Burke explains, "implies a structural and developmental invariance. The vertebrates share a structural bauplan within which there is rarely any major rearrangement of the fundamental relationships between the basic components."

Burke divides the world of tetrapods (four-limbed vertebrates) into "chelonian" and "non-chelonian" because the defining character of the order Chelonia represents a significant exception to the relative uniformity of bauplan. Chelonian vertebrae and ribs, she postulates, are associated with a specialized dermis (body covering), and together these structures form the carapace (shell).

Burke notes, "The critical character in chelonian anatomy is not simply the presence of an extensive dermal armor, but the relationship of the ribs to the dermis, and together their relationship to the pectoral girdle. This rearrangement radically affects such functions as respiration and locomotion and is different from any other vertebrate."

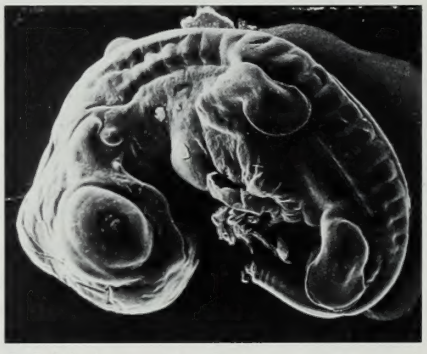
Burke, who worked with MCZ fossil preparator William Amaral in 1979 while still an undergraduate, chose to approach the evolution of the chelonian bauplan from a developmental perspective. Because of the dearth of historical information, both in terms of fossil material and published research, ontogeny, or the development of an individual through gestation, is the most effective way to infer how this odd, highly derived bauplan evolved.

Although fossil evidence of turtles is abundant, they emerge in the fossil record, whole hog, so to speak, with very little variation from modern turtles, thus providing neither evidence of prior evolutionary forms nor indicating what type of intermediary creature could have been functional.

Turtles have been studied extensively since the nineteenth century by such eniment biologists as Agassiz, Goethe and Cuvier. However, they were interested primarily in the composition of the carapace, not how these creatures arrived at a bauplan unique among vertebrates.

How does one extrapolate phylogeny from ontogeny?

All vertebrate embryos follow similar developmental paths, many of which have been extensively studied and documented in what are termed "fate maps." Using these fate maps for comparison, Burke has been searching for the point at which turtles begin to develop differently. Using a microscope, and immunofluorescent and autoradiographic



S.E.M. (scanning electron microscope) image showing the first sign of carapace formation. (Magnified 8 times.)

techniques, Burke examines the cells of embryos for size, shape and migratory patterns. She has isolated the moment in development when turtles diverge from the traditional pathway and embark upon their own journey. This point of divergence, Burke discovered, is the first appearance of the carapace margin. At this time the ribs are just beginning to form. They become in a sense "captured" by the expanding dermal carapace and redirected from what would be a normal "non-chelonian" position.

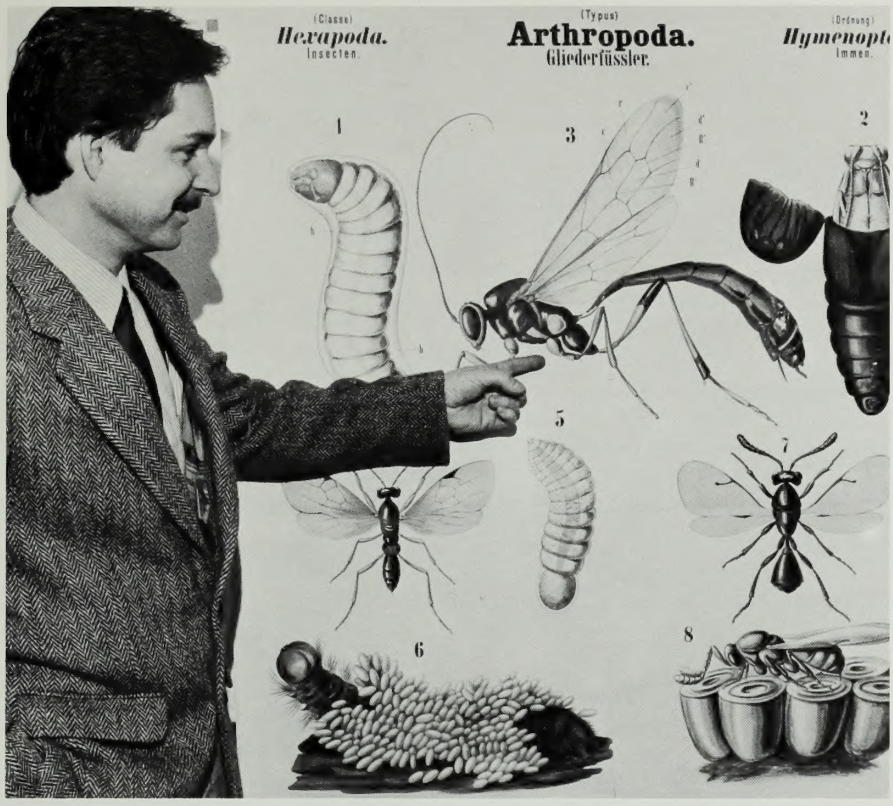
Ann C. Burke cradling Chelydra serpentina.

Her presentation of this discovery in 1986 won her the D. Dwight Davis prize from the American Society of Zoologists.

Based on an analogy of the developmental mechanism which initiates the first appearance of the carapace with stages of early limb development, Burke proposes that the interaction that initiates dermal outgrowth has a causal connection to rib placement. Burke concludes from her research that the evolutionary transition from non-chelonian to chelonian must have involved a series of intermediate forms that established the new relationship between the rib and shoulder girdle. In view of these revelations, Burke predicts that the turtle ancestor was an animal with reduced thoracic ribs and a generalized reptilian dermis. The presence of a relatively simple and common developmental mechanism in the ontogeny of the turtles unique bauplan makes plausible a morphological transition that has otherwise been difficult to understand.

After receipt of her doctorate in June, Burke is heading north to continue her work in developmental biology at Dalhousie University in Nova Scotia. As part of her research there she will take her chelonian investigation a step further and compile more sophisticated fate maps of turtles signature departure from the vertebrate bauplan.

Beyond BEETLEMANIA!



Scott Shaw pointing out the anatomy of a parasitic wasp.

Scott Shaw, Curatorial Associate in Entomology, will be leaving the MCZ on July 1, to assume an assistant professorship at the University of Wyoming in the Department of Plant, Soil and Insect Sciences.

Best known to many of us through his creation, BEETLEMANIA!, one of the most popular exhibitions ever displayed at the MCZ, Shaw's presence in the museum has been felt through many less celebrated, although not less important, contributions.

In 1986 he collaborated with Professors Wilson, Carpenter, and Bowers in writing and implementing the NSF "Ant Grant," an award that allowed the expansion and reorganization of the ant collection, thereby ensuring retention of its status as best in the world. He is presently working on an NSF proposal to develop a computer data base for the entomological "type specimen" holdings of more than 33,000, which are not recorded in handwritten books.

Shaw recently received a $1,000 grant from the American Philosophical Society towards his work on the systematics and evolution of parasitic wasps. Since many of the insects these wasps kill and eat are pests, this type of research has particularly practical beneficial applications. One of the groups of parasitic wasps that Shaw is interested in are the Rogadini. Targeting caterpillars as prey, the female rogadine lands on and stuns the caterpillar with a toxin injected by her sting-like ovipositor, she then deposits her eggs in the caterpillar. As the eggs develop and become larvae they feed on and gradually consume their host from the inside out. When they are ready to metamorphose they spin a cocoon within the remaining skin of the caterpillar preserving its shape. After metamorphosis the adult wasp escapes from its cocoon by breaking a small hole through the shell of the caterpillar leaving intact the mummified remains of the host insect. These "mummies" are very valuable in the study of hosts of parasitic insects, whose bodies are usually entirely consumed.

Staff Notes

Dr. **Kurt Schwenk,** NIH post doctoral fellow, has been working with Professor Crompton on the functional morphology of feeding in amphibians, reptiles and mammals, as well as lecturing in histology. In September Schwenk will assume an Assistant Professorship in the Department of Ecology and Evolutionary Biology at the University of Connecticut.

Brad Calloway, student of professor Ken Boss, received his Ph.D. last November for his thesis on "Brooding in the Bivalvia (Mollusca)". He has just been awarded a Smithsonian post-doctoral fellowship at the Smithsonian Marine Station in Link Port, Fort Pierce, Florida to work with Dr. Mary E. Rice.

Peg Riley, Research Associate in Population Genetics has recently won an Alfred P. Sloan foundation award for outstanding work in molecular evolution. After defending her thesis in May, she will continue her research at the University of Massachusetts, Amherst, and the University of California at Berkeley.

Professor **Pere Alberch** has just left the MCZ for Madrid where he will assume the Directorship of the National Museum of Madrid.

Greg Meyer, student of Ernest E. Williams, will receive his Ph.D. in June for his thesis on Caribbean island biogeography. He will continue his research as a post-doctoral fellow at the Smithsonian next year.

Cheryl Souza is the new bilingual staff assistant working with Arlene Nichols in the Education Department. She arranges guided tours, takes registration for the after-school and Saturday morning programs, and is liaison to the museum volunteer guides.

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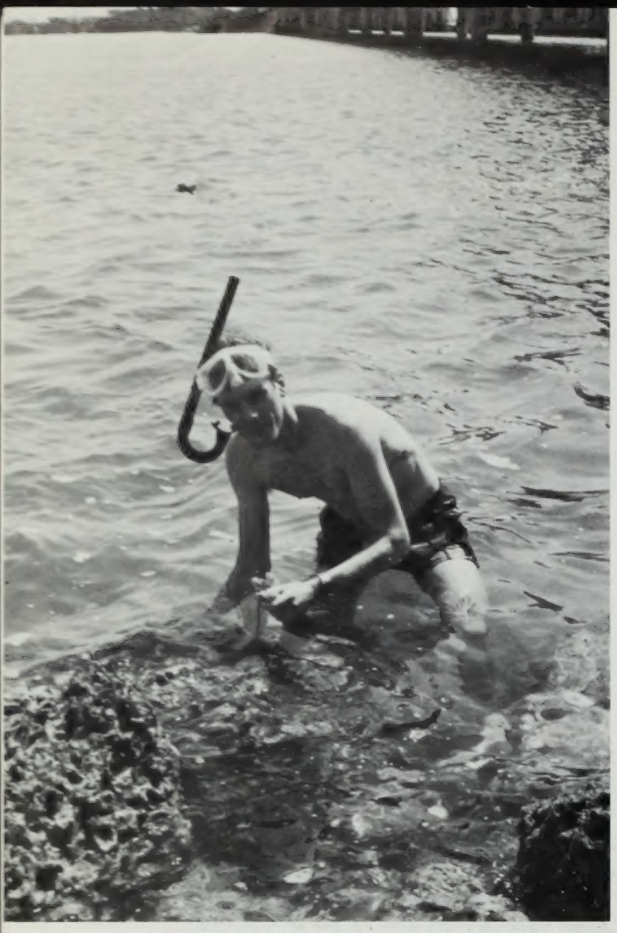

Photo by Steven Thompson.

Silvard Kool on a recent trip to the Florida keys collecting interidal muricid gastropods.

Kool New Curatorial Associate

This fall the Mollusk department welcomed Dr. Silvard P. Kool as its new Curatorial Associate. A native of Holland, Kool came to the United States in 1978 to carve out a career in marine biology.

"In Holland, high school students choose a field of concentration which they then must pursue if they go on to university," Kool explains. "Although I had been studying languages [he is proficient in Dutch, French, Spanish, Latin and Greek] I have had a fascination with shells and marine biology since I was a child and spent summer vacations snorkeling in the Mediterranean. So I decided to take the opportunity to deviate from my language path and pursue what I really wanted to study."

Kool found this opportunity at the University of South Carolina where he received a B.S. in Marine Sciences and Marine Biology in 1982. He continued his studies in the graduate program at George Washington University.

While fulfilling his coursework, he was invited to the Smithsonian by Dr. Richard S. Houbrick, Curator of Mollusks, to conduct dissertation research. Under Houbrick's direction, Kool studied the systematics and evolution of the Muricidae, a family of marine gastropods. Egg-laying and carnivorous, members of this enigmatic group exist in intertidal and subtidal environments world-wide. Kools' investigation of evolutionary relationships and zoogeographical patterns of groups within the Muricidae have led him to such exotic locales as Guam, Australia, Fiji, the Cook Islands, Niue, French Polynesia, Hawaii, and the Caribbean.

These globe-trotting ventures were largely financed by one of Kool's other passions—music. A professional pianist, he played to Washington restaurant audiences on week-ends and evenings throughout his graduate career.

Kool became interested in curatorial work while at the Smithsonian. Upon completing his doctoral studies there, he came to the MCZ as Curatorial Associate in the Mollusk Department. Here he manages the malacological collections, which are not only among the most extensive in the world, but so rich in "type specimens" that they are also of great historical and scientific value. (A "type specimen" is the actual specimen on which the description of a group of organisms is based.) Among his new duties, Kool plans to introduce computerization to the management of collections—demonstrating his proficiency on another kind of keyboard.

New Poster Available

The Agassiz Museum Shop has commissioned a striking MCZ poster. Designed and produced by James Higgins, a local artist, the poster depicts *Lestodon armatus*, the giant ground sloth on display in the Fossil Mammal Hall. The specimen was purchased by Alexander Agassiz from Professor Henry A. Ward (founder of the still very active Ward's Scientific) in 1890. At that time museums in the United States still possessed very little in the way of bones of these and other extinct South American mammals. In fact, although giant ground sloths coexisted with early hominids about two million years ago, they only came to the attention of modern humans in 1789.

The poster's colors are mocha brown on teal blue with an ivory border. It sells for $8.50. All proceeds generated by the Agassiz Museum Shop support the exhibits in the MCZ and the Geological Mineralogical Museums.

Treasures Within Your Reach

April is Museum Goers Month around Boston. Most of the museums in the area, of which there are a great many, band together for one month each year to promote public awareness of the diversity and richness of the cultural resources available in "our own backyards." Each participating museum plans a special event for Museum Goers Month. This year the MCZ is offering "Take a Walk on the Wild Side: Animal Tracking in the Exhibits." Simulated animal tracks will be laid down in the museum leading to the mounted specimens from which they originate. The trails will be trackable from April 17 to 23 and the activity is free with admission. As you sneak up on or sloth and pursue a porcupine, you might be surprised to find out whose footprints you've been following!

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